



RS-45

(R434A)

THERMODYNAMIC TABLES

FAHRENHEIT

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RS-45 (R434A)
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Temp °F	Pressure bubble point psia	Pressure dew point psia	Density bubble point lb/ft³	Density dew point lb/ft³	Volume bubble point ft³/lb	Volume dew point ft³/lb	Enthalpy bubble point Btu/lb	Enthalpy dew point Btu/lb	Entropy bubble point Btu/R-lb	Entropy dew point Btu/R-lb
-80	5.7701	4.7346	88.906	0.1259	0.011248	7.944	-11.414	74.38	-0.02851	0.19966
-78	6.1485	5.0634	88.698	0.1341	0.011274	7.460	-10.853	74.68	-0.02704	0.19921
-76	6.5467	5.4104	88.490	0.1426	0.011301	7.011	-10.292	74.98	-0.02557	0.19877
-74	6.9653	5.7762	88.281	0.1516	0.011327	6.595	-9.730	75.27	-0.02411	0.19834
-72	7.4051	6.1617	88.072	0.1611	0.011354	6.2074	-9.166	75.57	-0.02266	0.19793
-70	7.8669	6.5675	87.861	0.1710	0.011382	5.8474	-8.602	75.87	-0.02121	0.19753
-68	8.3515	6.9945	87.651	0.1814	0.011409	5.5123	-8.036	76.16	-0.01976	0.19714
-66	8.8595	7.4434	87.439	0.1923	0.011436	5.2002	-7.470	76.46	-0.01832	0.19676
-64	9.3919	7.9151	87.227	0.2037	0.011464	4.9092	-6.902	76.75	-0.01689	0.19639
-62	9.9495	8.4102	87.015	0.2156	0.011492	4.6376	-6.333	77.05	-0.01546	0.19603
-60	10.5330	8.9298	86.801	0.2281	0.011521	4.3841	-5.763	77.34	-0.01403	0.19568
-58	11.1430	9.4745	86.587	0.2411	0.011549	4.1472	-5.192	77.64	-0.01261	0.19535
-56	11.7820	10.0450	86.372	0.2547	0.011578	3.9256	-4.620	77.93	-0.01119	0.19502
-54	12.4480	10.6430	86.157	0.2689	0.011607	3.7183	-4.047	78.23	-0.00978	0.19470
-52	13.144	11.2690	85.940	0.2838	0.011636	3.5241	-3.472	78.52	-0.00837	0.19439
-50	13.871	11.9230	85.723	0.2992	0.011665	3.3420	-2.896	78.82	-0.00696	0.19410
-48	14.628	12.6070	85.505	0.3153	0.011695	3.1713	-2.320	79.11	-0.00556	0.19381
-46	15.418	13.3210	85.287	0.3321	0.011725	3.0110	-1.742	79.40	-0.00417	0.19353
-44	16.241	14.0670	85.067	0.3496	0.011755	2.8605	-1.162	79.70	-0.00277	0.19325
-42	17.098	14.8450	84.847	0.3678	0.011786	2.7191	-0.582	79.99	-0.00139	0.19299
-40	17.990	15.657	84.626	0.3867	0.011817	2.5860	0.000	80.28	0.00000	0.19274
-38	18.918	16.503	84.404	0.4064	0.011848	2.4608	0.583	80.57	0.00138	0.19249
-36	19.883	17.385	84.181	0.4268	0.011879	2.3429	1.167	80.86	0.00276	0.19225
-34	20.886	18.302	83.958	0.4481	0.011911	2.2318	1.753	81.15	0.00413	0.19202
-32	21.928	19.258	83.733	0.4701	0.011943	2.1271	2.340	81.44	0.00550	0.19180
-30	23.010	20.251	83.508	0.4930	0.011975	2.0283	2.928	81.73	0.00687	0.19158
-28	24.133	21.284	83.281	0.5168	0.012008	1.9350	3.517	82.02	0.00823	0.19137
-26	25.298	22.358	83.054	0.5415	0.012040	1.8468	4.108	82.31	0.00959	0.19117

RS-45 (R434A)
PSIA
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Temp °F	Pressure bubble point psia	Pressure dew point psia	Density bubble point lb/ft ³	Density dew point lb/ft ³	Volume bubble point ft ³ /lb	Volume dew point ft ³ /lb	Enthalpy bubble point Btu/lb	Enthalpy dew point Btu/lb	Entropy bubble point Btu/R-lb	Entropy dew point Btu/R-lb
-24	26.505	23.473	82.825	0.5670	0.012074	1.7635	4.701	82.60	0.01095	0.19097
-22	27.757	24.630	82.596	0.5936	0.012107	1.6848	5.294	82.88	0.01230	0.19078
-20	29.055	25.832	82.365	0.6210	0.012141	1.6102	5.889	83.17	0.01365	0.19060
-18	30.398	27.078	82.134	0.6495	0.012175	1.5397	6.486	83.45	0.01500	0.19042
-16	31.789	28.370	81.901	0.6790	0.012210	1.4729	7.083	83.74	0.01634	0.19025
-14	33.228	29.709	81.668	0.7095	0.012245	1.4095	7.683	84.02	0.01768	0.19008
-12	34.717	31.096	81.433	0.7411	0.012280	1.3494	8.284	84.30	0.01902	0.18992
-10	36.256	32.533	81.197	0.7737	0.012316	1.2925	8.886	84.59	0.02035	0.18977
-8	37.847	34.020	80.960	0.8075	0.012352	1.2384	9.490	84.87	0.02169	0.18962
-6	39.492	35.558	80.721	0.8425	0.012388	1.1870	10.095	85.15	0.02301	0.18947
-4	41.190	37.150	80.482	0.8786	0.012425	1.1382	10.702	85.43	0.02434	0.18933
-2	42.943	38.795	80.241	0.9159	0.012462	1.0918	11.310	85.70	0.02566	0.18920
0	44.753	40.495	79.999	0.9545	0.012500	1.0477	11.921	85.98	0.02699	0.18907
2	46.620	42.252	79.755	0.9944	0.012538	1.0057	12.532	86.26	0.02830	0.18894
4	48.546	44.066	79.511	1.0355	0.012577	0.9657	13.146	86.53	0.02962	0.18882
6	50.532	45.939	79.264	1.0780	0.012616	0.9276	13.761	86.81	0.03093	0.18871
8	52.578	47.872	79.017	1.1219	0.012656	0.8913	14.377	87.08	0.03224	0.18859
10	54.687	49.866	78.768	1.1672	0.012696	0.8567	14.996	87.35	0.03355	0.18849
12	56.860	51.923	78.517	1.2140	0.012736	0.8238	15.616	87.62	0.03486	0.18838
14	59.097	54.044	78.265	1.2622	0.012777	0.7923	16.238	87.89	0.03616	0.18828
16	61.401	56.229	78.012	1.3119	0.012819	0.7622	16.862	88.16	0.03747	0.18818
18	63.771	58.481	77.756	1.3632	0.012861	0.7336	17.487	88.42	0.03877	0.18809
20	66.210	60.800	77.500	1.4161	0.012903	0.7062	18.114	88.69	0.04007	0.18799
22	68.718	63.188	77.241	1.4707	0.012946	0.6800	18.744	88.95	0.04136	0.18790
24	71.298	65.647	76.981	1.5269	0.012990	0.6549	19.375	89.22	0.04266	0.18782
26	73.949	68.176	76.719	1.5849	0.013035	0.6310	20.008	89.48	0.04395	0.18774
28	76.674	70.779	76.455	1.6446	0.013080	0.6080	20.643	89.74	0.04524	0.18765
30	79.474	73.456	76.189	1.7062	0.013125	0.5861	21.280	89.99	0.04653	0.18758

RS-45 (R434A)
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FAHRENHEIT



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32	82.350	76.208	75.921	1.7696	0.013172	0.5651	21.919	90.25	0.04782	0.18750
34	85.304	79.038	75.652	1.8350	0.013218	0.5450	22.561	90.50	0.04911	0.18743
36	88.336	81.945	75.380	1.9023	0.013266	0.5257	23.204	90.76	0.05039	0.18735
38	91.447	84.932	75.106	1.9717	0.013314	0.5072	23.849	91.01	0.05168	0.18728
40	94.641	88.001	74.831	2.0431	0.013364	0.4895	24.497	91.26	0.05296	0.18722
42	97.917	91.151	74.553	2.1167	0.013413	0.4724	25.147	91.50	0.05424	0.18715
44	101.280	94.386	74.272	2.1925	0.013464	0.4561	25.799	91.75	0.05552	0.18708
46	104.720	97.706	73.990	2.2706	0.013515	0.4404	26.454	91.99	0.05680	0.18702
48	108.250	101.110	73.705	2.3510	0.013568	0.4254	27.111	92.23	0.05808	0.18696
50	111.870	104.610	73.417	2.4337	0.013621	0.4109	27.770	92.47	0.05936	0.18689
52	115.580	108.190	73.127	2.5190	0.013675	0.3970	28.432	92.71	0.06064	0.18683
54	119.390	111.870	72.834	2.6068	0.013730	0.3836	29.096	92.94	0.061914	0.18677
56	123.28	115.640	72.539	2.6972	0.013786	0.3708	29.763	93.172	0.06319	0.18671
58	127.27	119.500	72.241	2.7903	0.013843	0.3584	30.432	93.401	0.064466	0.18665
60	131.35	123.460	71.940	2.8862	0.013900	0.3465	31.104	93.628	0.065742	0.18659
62	135.53	127.510	71.636	2.9849	0.013959	0.3350	31.779	93.852	0.067017	0.18652
64	139.80	131.67	71.329	3.0866	0.014020	0.3240	32.457	94.073	0.068292	0.18646
66	144.18	135.92	71.019	3.1914	0.014081	0.3133	33.137	94.29	0.06957	0.18640
68	148.66	140.28	70.706	3.2993	0.014143	0.3031	33.821	94.51	0.07084	0.18634
70	153.24	144.74	70.389	3.4105	0.014207	0.2932	34.507	94.72	0.07212	0.18627
72	157.92	149.30	70.069	3.5250	0.014272	0.2837	35.197	94.93	0.07340	0.18621
74	162.71	153.97	69.745	3.6430	0.014338	0.2745	35.889	95.13	0.07467	0.18614
76	167.61	158.76	69.417	3.7647	0.014406	0.2656	36.59	95.34	0.07595	0.18607
78	172.62	163.65	69.086	3.8900	0.014475	0.2571	37.29	95.54	0.07723	0.18600
80	177.73	168.65	68.751	4.0193	0.014545	0.2488	37.99	95.73	0.07851	0.18593
82	182.96	173.77	68.411	4.1525	0.014618	0.2408	38.69	95.92	0.07979	0.18586
84	188.31	179.00	68.067	4.2899	0.014691	0.2331	39.40	96.11	0.08107	0.18578
86	193.76	184.35	67.719	4.4317	0.014767	0.2257	40.12	96.29	0.08235	0.18570

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88	199.34	189.82	67.366	4.5779	0.014844	0.2184	40.83	96.47	0.08364	0.18561
90	205.03	195.41	67.008	4.7289	0.014924	0.2115	41.56	96.65	0.08492	0.18553
92	210.85	201.12	66.645	4.8847	0.015005	0.2047	42.28	96.82	0.08621	0.18543
94	216.78	206.96	66.277	5.0456	0.015088	0.1982	43.01	96.98	0.08750	0.18534
96	222.84	212.92	65.903	5.2118	0.015174	0.1919	43.75	97.14	0.08879	0.18524
98	229.03	219.01	65.524	5.3836	0.015262	0.1858	44.48	97.29	0.09009	0.18513
100	235.34	225.24	65.138	5.5611	0.015352	0.1798	45.23	97.44	0.09139	0.18502
102	241.78	231.59	64.746	5.7448	0.015445	0.1741	45.98	97.59	0.09269	0.18490
104	248.35	238.09	64.348	5.9348	0.015541	0.1685	46.73	97.72	0.09399	0.18478
106	255.06	244.72	63.943	6.1315	0.015639	0.1631	47.49	97.85	0.09530	0.18465
108	261.90	251.49	63.530	6.3352	0.015741	0.1579	48.25	97.97	0.09662	0.18451
110	268.88	258.40	63.110	6.5464	0.015845	0.1528	49.02	98.09	0.09793	0.18436
112	276.00	265.45	62.681	6.7654	0.015954	0.1478	49.80	98.20	0.09926	0.18421
114	283.26	272.65	62.244	6.9927	0.016066	0.1430	50.58	98.30	0.10059	0.18404
116	290.66	280.00	61.798	7.2288	0.016182	0.1383	51.37	98.39	0.10192	0.18387
118	298.21	287.51	61.342	7.4741	0.016302	0.1338	52.17	98.47	0.10326	0.18368
120	305.90	295.17	60.875	7.7294	0.016427	0.1294	52.97	98.54	0.10461	0.18348
122	313.75	302.98	60.398	7.9953	0.016557	0.1251	53.78	98.60	0.10596	0.18327
124	321.75	310.96	59.909	8.2724	0.016692	0.1209	54.60	98.65	0.10733	0.18304
126	329.90	319.10	59.407	8.5618	0.016833	0.1168	55.43	98.69	0.10870	0.18280
128	338.21	327.40	58.892	8.8641	0.016980	0.1128	56.27	98.71	0.11009	0.18254
130	346.68	335.88	58.362	9.1806	0.017135	0.1089	57.11	98.72	0.11148	0.18227
132	355.31	344.53	57.815	9.5125	0.017297	0.1051	57.97	98.72	0.11289	0.18197
134	364.11	353.36	57.251	9.8610	0.017467	0.1014	58.84	98.70	0.11431	0.18165
136	373.07	362.36	56.668	10.2280	0.017647	0.0978	59.73	98.66	0.11575	0.18130
138	382.21	371.56	56.063	10.6150	0.017837	0.0942	60.63	98.60	0.11720	0.18093
140	391.52	380.95	55.435	11.0240	0.018039	0.0907	61.54	98.52	0.11868	0.18052
142	401.01	390.53	54.780	11.4580	0.018255	0.0873	62.47	98.41	0.12018	0.18008

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144	410.67	400.31	54.095	11.9200	0.018486	0.0839	63.42	98.28	0.12170	0.17961
146	420.53	410.30	53.376	12.4140	0.018735	0.0806	64.39	98.11	0.12325	0.17908
148	430.57	420.51	52.617	12.9450	0.019005	0.0772	65.39	97.91	0.12484	0.17851
150	440.80	430.93	51.811	13.5190	0.019301	0.0740	66.42	97.67	0.12647	0.17787
152	451.22	441.59	50.951	14.1430	0.019627	0.0707	67.48	97.38	0.12815	0.17716
154	461.85	452.49	50.023	14.828	0.019991	0.0674	68.59	97.03	0.12989	0.17636
156	472.68	463.65	49.010	15.589	0.020404	0.0641	69.75	96.61	0.13171	0.17545
158	483.71	475.09	47.888	16.448	0.020882	0.0608	70.98	96.09	0.13363	0.17440
160	494.95	486.82	46.617	17.438	0.021451	0.0573	72.30	95.45	0.13570	0.17316
162	506.40	498.89	45.128	18.618	0.022159	0.0537	73.76	94.64	0.13797	0.17165
164	519.81	512.75	43.514	23.452	0.023047	0.0459	75.32	90.82	0.14039	0.16537
166	533.22	526.60	41.900	28.285	0.023934	0.0380	76.89	87.01	0.14280	0.15909
168	546.63	540.46	40.286	33.119	0.024822	0.0302	78.46	83.19	0.14522	0.15281
170	558.75	581.30	37.813	43.693	0.026446	0.0229	80.62	76.98	0.14857	0.14262
172	591.01	594.48	42.148	42.697	0.023726	0.0234	78.50	78.17	0.14497	0.14442

RS-45 (R434A)
PSIG
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Temp °F	Pressure bubble point psig	Pressure dew point psig	Density bubble point lb/ft ³	Density dew point lb/ft ³	Volume bubble point ft ³ /lb	Volume dew point ft ³ /lb	Enthalpy bubble point Btu/lb	Enthalpy dew point Btu/lb	Entropy bubble point Btu/R-lb	Entropy dew point Btu/R-lb
-80	-8.9259	-9.9614	88.906	0.1259	0.011248	7.944	-11.414	74.38	-0.02851	0.19966
-78	-8.5475	-9.6326	88.698	0.1341	0.011274	7.460	-10.853	74.68	-0.02704	0.19921
-76	-8.1493	-9.2856	88.490	0.1426	0.011301	7.011	-10.292	74.98	-0.02557	0.19877
-74	-7.7307	-8.9198	88.281	0.1516	0.011327	6.595	-9.730	75.27	-0.02411	0.19834
-72	-7.2909	-8.5343	88.072	0.1611	0.011354	6.2074	-9.166	75.57	-0.02266	0.19793
-70	-6.8291	-8.1285	87.861	0.1710	0.011382	5.8474	-8.602	75.87	-0.02121	0.19753
-68	-6.3445	-7.7015	87.651	0.1814	0.011409	5.5123	-8.036	76.16	-0.01976	0.19714
-66	-5.8365	-7.2526	87.439	0.1923	0.011436	5.2002	-7.470	76.46	-0.01832	0.19676
-64	-5.3041	-6.7809	87.227	0.2037	0.011464	4.9092	-6.902	76.75	-0.01689	0.19639
-62	-4.7465	-6.2858	87.015	0.2156	0.011492	4.6376	-6.333	77.05	-0.01546	0.19603
-60	-4.1630	-5.7662	86.801	0.2281	0.011521	4.3841	-5.763	77.34	-0.01403	0.19568
-58	-3.5530	-5.2215	86.587	0.2411	0.011549	4.1472	-5.192	77.64	-0.01261	0.19535
-56	-2.9140	-4.6510	86.372	0.2547	0.011578	3.9256	-4.620	77.93	-0.01119	0.19502
-54	-2.2480	-4.0530	86.157	0.2689	0.011607	3.7183	-4.047	78.23	-0.00978	0.19470
-52	-1.5520	-3.4270	85.940	0.2838	0.011636	3.5241	-3.472	78.52	-0.00837	0.19439
-50	-0.8250	-2.7730	85.723	0.2992	0.011665	3.3420	-2.896	78.82	-0.00696	0.19410
-48	-0.0680	-2.0890	85.505	0.3153	0.011695	3.1713	-2.320	79.11	-0.00556	0.19381
-46	0.7220	-1.3750	85.287	0.3321	0.011725	3.0110	-1.742	79.40	-0.00417	0.19353
-44	1.5450	-0.6290	85.067	0.3496	0.011755	2.8605	-1.162	79.70	-0.00277	0.19325
-42	2.4020	0.1490	84.847	0.3678	0.011786	2.7191	-0.582	79.99	-0.00139	0.19299
-40	3.2940	0.9610	84.626	0.3867	0.011817	2.5860	0.000	80.28	0.00000	0.19274
-38	4.2220	1.8070	84.404	0.4064	0.011848	2.4608	0.583	80.57	0.00138	0.19249
-36	5.1870	2.6890	84.181	0.4268	0.011879	2.3429	1.167	80.86	0.00276	0.19225
-34	6.1900	3.6060	83.958	0.4481	0.011911	2.2318	1.753	81.15	0.00413	0.19202
-32	7.2320	4.5620	83.733	0.4701	0.011943	2.1271	2.340	81.44	0.00550	0.19180
-30	8.3140	5.5550	83.508	0.4930	0.011975	2.0283	2.928	81.73	0.00687	0.19158
-28	9.4370	6.5880	83.281	0.5168	0.012008	1.9350	3.517	82.02	0.00823	0.19137

RS-45 (R434A)
PSIG
FAHRENHEIT



Temp °F	Pressure bubble point psig	Pressure dew point psig	Density bubble point lb/ft ³	Density dew point lb/ft ³	Volume bubble point ft ³ /lb	Volume dew point ft ³ /lb	Enthalpy bubble point Btu/lb	Enthalpy dew point Btu/lb	Entropy bubble point Btu/R-lb	Entropy dew point Btu/R-lb
-26	10.6020	7.6620	83.054	0.5415	0.012040	1.8468	4.108	82.31	0.00959	0.19117
-24	11.8090	8.7770	82.825	0.5670	0.012074	1.7635	4.701	82.60	0.01095	0.19097
-22	13.0610	9.9340	82.596	0.5936	0.012107	1.6848	5.294	82.88	0.01230	0.19078
-20	14.3590	11.1360	82.365	0.6210	0.012141	1.6102	5.889	83.17	0.01365	0.19060
-18	15.7020	12.3820	82.134	0.6495	0.012175	1.5397	6.486	83.45	0.01500	0.19042
-16	17.0930	13.6740	81.901	0.6790	0.012210	1.4729	7.083	83.74	0.01634	0.19025
-14	18.5320	15.0130	81.668	0.7095	0.012245	1.4095	7.683	84.02	0.01768	0.19008
-12	20.0210	16.4000	81.433	0.7411	0.012280	1.3494	8.284	84.30	0.01902	0.18992
-10	21.5600	17.8370	81.197	0.7737	0.012316	1.2925	8.886	84.59	0.02035	0.18977
-8	23.1510	19.3240	80.960	0.8075	0.012352	1.2384	9.490	84.87	0.02169	0.18962
-6	24.7960	20.8620	80.721	0.8425	0.012388	1.1870	10.095	85.15	0.02301	0.18947
-4	26.4940	22.4540	80.482	0.8786	0.012425	1.1382	10.702	85.43	0.02434	0.18933
-2	28.2470	24.0990	80.241	0.9159	0.012462	1.0918	11.310	85.70	0.02566	0.18920
0	30.0570	25.7990	79.999	0.9545	0.012500	1.0477	11.921	85.98	0.02699	0.18907
2	31.9240	27.5560	79.755	0.9944	0.012538	1.0057	12.532	86.26	0.02830	0.18894
4	33.8500	29.3700	79.511	1.0355	0.012577	0.9657	13.146	86.53	0.02962	0.18882
6	35.8360	31.2430	79.264	1.0780	0.012616	0.9276	13.761	86.81	0.03093	0.18871
8	37.8820	33.1760	79.017	1.1219	0.012656	0.8913	14.377	87.08	0.03224	0.18859
10	39.9910	35.1700	78.768	1.1672	0.012696	0.8567	14.996	87.35	0.03355	0.18849
12	42.1640	37.2270	78.517	1.2140	0.012736	0.8238	15.616	87.62	0.03486	0.18838
14	44.4010	39.3480	78.265	1.2622	0.012777	0.7923	16.238	87.89	0.03616	0.18828
16	46.7050	41.5330	78.012	1.3119	0.012819	0.7622	16.862	88.16	0.03747	0.18818
18	49.0750	43.7850	77.756	1.3632	0.012861	0.7336	17.487	88.42	0.03877	0.18809
20	51.5140	46.1040	77.500	1.4161	0.012903	0.7062	18.114	88.69	0.04007	0.18799
22	54.0220	48.4920	77.241	1.4707	0.012946	0.6800	18.744	88.95	0.04136	0.18790
24	56.6020	50.9510	76.981	1.5269	0.012990	0.6549	19.375	89.22	0.04266	0.18782
26	59.2530	53.4800	76.719	1.5849	0.013035	0.6310	20.008	89.48	0.04395	0.18774
28	61.9780	56.0830	76.455	1.6446	0.013080	0.6080	20.643	89.74	0.04524	0.18765
30	64.7780	58.7600	76.189	1.7062	0.013125	0.5861	21.280	89.99	0.04653	0.18758

RS-45 (R434A)
PSIG
FAHRENHEIT



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32	67.6540	61.5120	75.921	1.7696	0.013172	0.5651	21.919	90.25	0.04782	0.18750
34	70.6080	64.3420	75.652	1.8350	0.013218	0.5450	22.561	90.50	0.04911	0.18743
36	73.6400	67.2490	75.380	1.9023	0.013266	0.5257	23.204	90.76	0.05039	0.18735
38	76.7510	70.2360	75.106	1.9717	0.013314	0.5072	23.849	91.01	0.05168	0.18728
40	79.9450	73.3050	74.831	2.0431	0.013364	0.4895	24.497	91.26	0.05296	0.18722
42	83.2210	76.4550	74.553	2.1167	0.013413	0.4724	25.147	91.50	0.05424	0.18715
44	86.5840	79.6900	74.272	2.1925	0.013464	0.4561	25.799	91.75	0.05552	0.18708
46	90.0240	83.0100	73.990	2.2706	0.013515	0.4404	26.454	91.99	0.05680	0.18702
48	93.5540	86.4140	73.705	2.3510	0.013568	0.4254	27.111	92.23	0.05808	0.18696
50	97.1740	89.9140	73.417	2.4337	0.013621	0.4109	27.770	92.47	0.05936	0.18689
52	100.8840	93.4940	73.127	2.5190	0.013675	0.3970	28.432	92.71	0.06064	0.18683
54	104.6940	97.1740	72.834	2.6068	0.013730	0.3836	29.096	92.94	0.061914	0.18677
56	108.5840	100.9440	72.539	2.6972	0.013786	0.3708	29.763	93.172	0.06319	0.18671
58	112.5740	104.8040	72.241	2.7903	0.013843	0.3584	30.432	93.401	0.064466	0.18665
60	116.6540	108.7640	71.940	2.8862	0.013900	0.3465	31.104	93.628	0.065742	0.18659
62	120.8340	112.8140	71.636	2.9849	0.013959	0.3350	31.779	93.852	0.067017	0.18652
64	125.1040	116.9740	71.329	3.0866	0.014020	0.3240	32.457	94.073	0.068292	0.18646
66	129.4840	121.2240	71.019	3.1914	0.014081	0.3133	33.137	94.29	0.06957	0.18640
68	133.9640	125.5840	70.706	3.2993	0.014143	0.3031	33.821	94.51	0.07084	0.18634
70	138.5440	130.0440	70.389	3.4105	0.014207	0.2932	34.507	94.72	0.07212	0.18627
72	143.2240	134.6040	70.069	3.5250	0.014272	0.2837	35.197	94.93	0.07340	0.18621
74	148.0140	139.2740	69.745	3.6430	0.014338	0.2745	35.889	95.13	0.07467	0.18614
76	152.9140	144.0640	69.417	3.7647	0.014406	0.2656	36.59	95.34	0.07595	0.18607
78	157.9240	148.9540	69.086	3.8900	0.014475	0.2571	37.29	95.54	0.07723	0.18600
80	163.0340	153.9540	68.751	4.0193	0.014545	0.2488	37.99	95.73	0.07851	0.18593
82	168.2640	159.0740	68.411	4.1525	0.014618	0.2408	38.69	95.92	0.07979	0.18586
84	173.6140	164.3040	68.067	4.2899	0.014691	0.2331	39.40	96.11	0.08107	0.18578
86	179.0640	169.6540	67.719	4.4317	0.014767	0.2257	40.12	96.29	0.08235	0.18570
88	184.6440	175.1240	67.366	4.5779	0.014844	0.2184	40.83	96.47	0.08364	0.18561

RS-45 (R434A)
PSIG
FAHRENHEIT



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90	190.3340	180.7140	67.008	4.7289	0.014924	0.2115	41.56	96.65	0.08492	0.18553
92	196.1540	186.4240	66.645	4.8847	0.015005	0.2047	42.28	96.82	0.08621	0.18543
94	202.0840	192.2640	66.277	5.0456	0.015088	0.1982	43.01	96.98	0.08750	0.18534
96	208.1440	198.2240	65.903	5.2118	0.015174	0.1919	43.75	97.14	0.08879	0.18524
98	214.3340	204.3140	65.524	5.3836	0.015262	0.1858	44.48	97.29	0.09009	0.18513
100	220.6440	210.5440	65.138	5.5611	0.015352	0.1798	45.23	97.44	0.09139	0.18502
102	227.0840	216.8940	64.746	5.7448	0.015445	0.1741	45.98	97.59	0.09269	0.18490
104	233.6540	223.3940	64.348	5.9348	0.015541	0.1685	46.73	97.72	0.09399	0.18478
106	240.3640	230.0240	63.943	6.1315	0.015639	0.1631	47.49	97.85	0.09530	0.18465
108	247.2040	236.7940	63.530	6.3352	0.015741	0.1579	48.25	97.97	0.09662	0.18451
110	254.1840	243.7040	63.110	6.5464	0.015845	0.1528	49.02	98.09	0.09793	0.18436
112	261.3040	250.7540	62.681	6.7654	0.015954	0.1478	49.80	98.20	0.09926	0.18421
114	268.5640	257.9540	62.244	6.9927	0.016066	0.1430	50.58	98.30	0.10059	0.18404
116	275.9640	265.3040	61.798	7.2288	0.016182	0.1383	51.37	98.39	0.10192	0.18387
118	283.5140	272.8140	61.342	7.4741	0.016302	0.1338	52.17	98.47	0.10326	0.18368
120	291.2040	280.4740	60.875	7.7294	0.016427	0.1294	52.97	98.54	0.10461	0.18348
122	299.0540	288.2840	60.398	7.9953	0.016557	0.1251	53.78	98.60	0.10596	0.18327
124	307.0540	296.2640	59.909	8.2724	0.016692	0.1209	54.60	98.65	0.10733	0.18304
126	315.2040	304.4040	59.407	8.5618	0.016833	0.1168	55.43	98.69	0.10870	0.18280
128	323.5140	312.7040	58.892	8.8641	0.016980	0.1128	56.27	98.71	0.11009	0.18254
130	331.9840	321.1840	58.362	9.1806	0.017135	0.1089	57.11	98.72	0.11148	0.18227
132	340.6140	329.8340	57.815	9.5125	0.017297	0.1051	57.97	98.72	0.11289	0.18197
134	349.4140	338.6640	57.251	9.8610	0.017467	0.1014	58.84	98.70	0.11431	0.18165
136	358.3740	347.6640	56.668	10.2280	0.017647	0.0978	59.73	98.66	0.11575	0.18130
138	367.5140	356.8640	56.063	10.6150	0.017837	0.0942	60.63	98.60	0.11720	0.18093
140	376.8240	366.2540	55.435	11.0240	0.018039	0.0907	61.54	98.52	0.11868	0.18052
142	386.3140	375.8340	54.780	11.4580	0.018255	0.0873	62.47	98.41	0.12018	0.18008
144	395.9740	385.6140	54.095	11.9200	0.018486	0.0839	63.42	98.28	0.12170	0.17961
146	405.8340	395.6040	53.376	12.4140	0.018735	0.0806	64.39	98.11	0.12325	0.17908

RS-45 (R434A)
PSIG
FAHRENHEIT



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148	415.8740	405.8140	52.617	12.9450	0.019005	0.0772	65.39	97.91	0.12484	0.17851
150	426.1040	416.2340	51.811	13.5190	0.019301	0.0740	66.42	97.67	0.12647	0.17787
152	436.5240	426.8940	50.951	14.1430	0.019627	0.0707	67.48	97.38	0.12815	0.17716
154	447.1540	437.7940	50.023	14.828	0.019991	0.0674	68.59	97.03	0.12989	0.17636
156	457.9840	448.9540	49.010	15.589	0.020404	0.0641	69.75	96.61	0.13171	0.17545
158	469.0140	460.3940	47.888	16.448	0.020882	0.0608	70.98	96.09	0.13363	0.17440
160	480.2540	472.1240	46.617	17.438	0.021451	0.0573	72.30	95.45	0.13570	0.17316
162	491.7040	484.1940	45.128	18.618	0.022159	0.0537	73.757	94.64	0.13797	0.17165
164	505.1140	498.0507	43.514	23.452	0.023047	0.0459	75.32	90.82	0.14039	0.16537
166	518.5240	511.9073	41.900	28.285	0.023934	0.0380	76.89	87.01	0.14280	0.15909
168	531.9340	525.7640	40.286	33.119	0.024822	0.0302	78.458	83.191	0.14522	0.15281
170	544.0540	566.6040	37.813	43.693	0.026446	0.0229	80.621	76.975	0.14857	0.14262
172	576.3140	579.7840	42.148	42.697	0.023726	0.0234	78.502	78.168	0.14497	0.14442